

## Product Evaluation

SHU52 | 0521

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

**Evaluation ID:** SHU-52

**Effective Date:** May 1, 2021

**Re-evaluation Date:** May 2025

**Product Name:** ES 44 and ES 55 Extruded Aluminum Roll Up Shutters, Impact Resistant

**Manufacturer:** Croci North America  
11600 Adelmo Lane  
Suite 1  
Fort Myers, FL 33966  
(800) 951-1195

### General Description:

The ES44 and the ES55 roll up shutters are manufactured from extruded aluminum. The roll up shutters are assembled using interlocking extruded aluminum slats. The components of the roll up shutter system are as follows:

**ES44 Slats:** Manufactured from 6063-T6 aluminum alloy with a thickness of 0.040" and a cross section of 1.74" wide by 0.374" deep.

**ES55 Slats:** Manufactured from 6063-T6 aluminum alloy with a thickness of 0.040" and a cross section of 2.17" wide by 0.52" deep.

**Side Rail (Used with ES55 slats):** Manufactured from 6063-T6 aluminum. The side rail is 3.150" in length and 1.10" in depth.

**Alternative Side Rail (Used with ES55 slats):** Manufactured from 6063-T6 aluminum. The side rail is 3.150" in length and 1.10" in depth.

**Side Rail (Used with ES44 slats):** Manufactured from 6063-T6 aluminum. The side rail is 2.44" in length and 0.83" in depth.

**Storm Bars (Aluminum Tube):** Manufactured of 6063-T6 aluminum. The storm bars have a 2" wide face. The storm bars are available in 2", 3", 4", 5", and 6" depths. The wall thickness is 0.125".

**Header Bars (Aluminum Tube):** Manufactured of 6063-T6 aluminum. The header bars have a 2" wide face. The header bars are available in 2", 3", 4", 5", and 6" depths. The wall thickness is 0.125".

**Mullion Bars (Aluminum Tube):** Manufactured of 6063-T6 aluminum. The mullion bars have a 2" face. The mullion bars are available in 2", 3", 4", 5", and 6" depths. The wall thickness is 0.125".

#### **Limitations:**

**Design Drawings:** "ES 55-ES44 Extruded Aluminum Roll-Up Shutter," Drawing No. 19-071.1, sheets 1 through 18 of 18, dated April 21, 2020, and signed and sealed by Pedro Figueiredo, P.E. on April 21, 2020. The stated drawings will be referred to as "approved drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site

**Wall Construction:** The shutters may be mounted to the following types of wall framing:

- Pre-cast concrete, cast-in-place concrete (minimum compressive strength required specified in drawings)
- Hollow concrete masonry units (CMU); (minimum compressive strength required specified in drawings)
- Wood (minimum Douglas Fir-Larch dimension lumber)
- Steel (minimum A36, 1/8" thickness)
- Aluminum (minimum 6063-T6, 1/4" thickness)

**Mounting Configurations:** The shutters may be mounted directly to the wall system, built out from the wall system using a 2x extruded aluminum tube, or inset from the wall system. Refer to the approved drawings for illustrations of allowable mounting configurations.

**Span Configurations:** The roll up shutters can be installed as single span systems, two span systems, or three span systems. Each span configuration can be extended by using a mullion. Refer to the approved drawings for illustrations of allowable span configurations.

**Design Pressure Rating:** The design pressure rating for the roll up shutters is dependent on several factors, including the span, the mounting condition, and the mullion span. Refer to the approved drawings to determine the allowable design pressure rating for the shutter assembly based on the configuration of the roll-up shutter assembly used. In no case can the design pressure rating exceed +/-150 psf.

**Maximum Slat Spans:** The allowable slat span varies as a function of design pressure. The maximum allowable ES55 slat span is 80". The maximum allowable ES44 slat span is 51". Refer to the approved drawings for the allowable slat span.

**Maximum Storm Bar Span:** The maximum allowable vertical storm bar height varies as a function of the cross-section dimensions of the storm bar, the slat span, and the design pressure. The maximum storm bar span is 120". Refer to the approved drawings for the allowable storm bar span.

**Maximum Header Bar Span:** The maximum allowable horizontal header span is a function of the cross-section dimensions of the header bar, the storm bar height, and the track to track spacing.

**Maximum Mullion Bar Span:** The maximum allowable vertical mullion bar height is specified on the approved drawings. One of the following cases shall be utilized:

- **Single Span Shutters:** The mullion bar spans are a function of the cross-section dimensions of the mullion bar, the slat span, and the design pressure.
- **Multiple Span Shutters with Header Bar Anchored to the Mullion Bar.** The mullion bar spans are a function of the cross-section dimensions of the mullion bar, the track to track spacing, and the design pressure.

**Minimum Separation from Glass:** The minimum glazing separation requirements are specified in the approved drawings. The shutters may not be installed below a height of 30 feet on essential facilities as defined in ASTM E 1996-14a.

**Product Identification:** The shutter assemblies have a manufacturer-produced label that indicates the manufacturer (Croc North America); the name of the product (Croc Extruded Roll Up Slat); the TDI Evaluation Report number (SHU-52); the missile level (Missile Level D); the design pressure and installation are in accordance with Drawing 19-071; and the test standards: ASTM E 330-02, ASTM E 1886-04, and ASTM E 1996-04.

**Compliance:** The shutters comply with ASTM E 330-14, ASTM E 1886-13a, and ASTM E 1996-14a.

**Impact Resistance:** This shutter assembly satisfies the TDI criteria for protection from windborne. The shutters passed Missile Level D specified in ASTM E 1996-14a. The assembly may be installed at any height on the structure as long as the design pressure rating for the assembly is not exceeded. The shutters may not be installed below a height of 30 feet on essential facilities as defined in ASTM E 1996-14a.

#### **Installation:**

**General Installation Requirements:** The shutters must be installed in accordance with the manufacturer's installation instructions, the approved drawings, and this product evaluation report. Copies of the approved drawings must be available on the jobsite during inspection of the shutter assembly.

**Anchorage:** The shutters must be anchored to the structure in accordance with the approved drawings.

**Note:** Keep the manufacturer's installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.